

(No Model.)

I. A. SALMON.
AUTOHARP.

No. 511,970.

Patented Jan. 2, 1894.

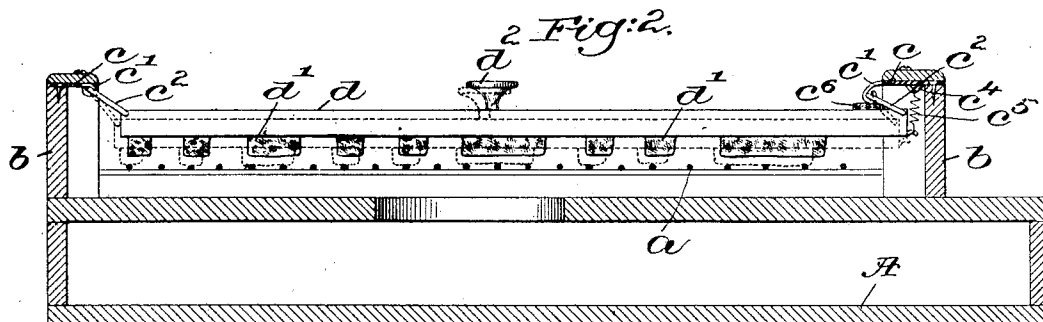


Fig: 3.

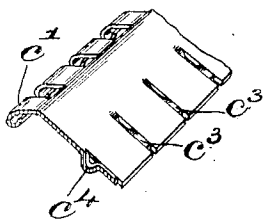
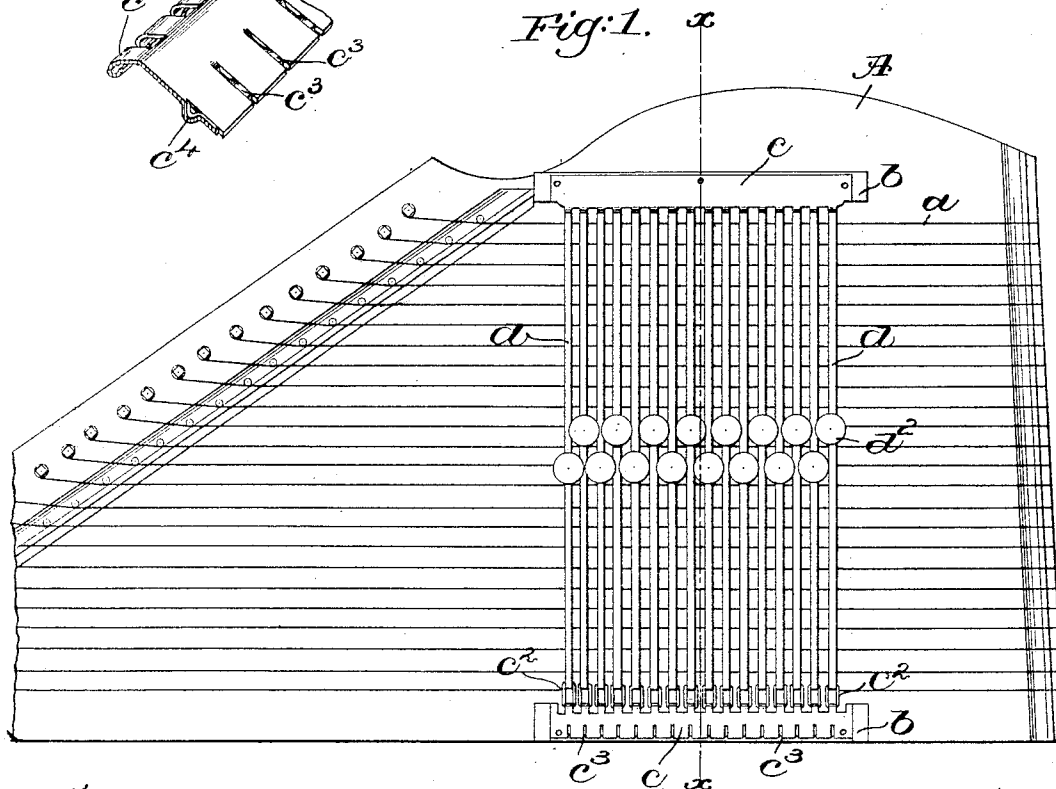


Fig: 1.



witnesses.

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UNITED STATES PATENT OFFICE.

IRA A. SALMON, OF BOSTON, MASSACHUSETTS.

AUTOHARP.

SPECIFICATION forming part of Letters Patent No. 511,970, dated January 2, 1894.

Application filed May 12, 1893. Serial No. 473,971. (No model.)

To all whom it may concern:

Be it known that I, IRA A. SALMON, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Autoharps, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to that class of harps commonly known as "autoharps," and which are provided with a series of muffler-bars crossing the strings, and having properly spaced or located mufflers, which, when the muffler-bar or bars upon which they are mounted is or are depressed act upon and damp certain of the strings, and thereby prevent vibration of the same and consequently prevent the production of a tone by such strings as are damped, the cord or tone produced depending upon the particular string or strings which are not damped but are permitted to vibrate. Prior to this invention these muffler-bars have been supported upon spiral springs between suitable vertical guides which maintain the bars in proper positions, while the springs maintain them normally raised from or out of contact with the strings, they being pressed down upon the strings by the operator as desired, to produce the proper effects. In instruments constructed in this manner, however, the movements of the muffler-bars are necessarily much harder than is desirable or necessary, and the presence of the guides between the muffler-bars, which with the muffler-bars are usually made of wood, are necessarily of such size as to limit the number of bars which can be used in a single instrument and thereby limit the capacity or range of the instrument. To increase the range or capacity of the instrument, the mufflers are sometimes mounted upon slides on the muffler-bars, which slides are moved into different positions on the bars, and to act upon different strings when the bars are depressed, by means of triggers which are moved longitudinally of the bars at the same time as the latter are depressed. While the range of the instrument is somewhat increased by this construction, it is exceedingly difficult to depress the muffler-bars and at the same time one or both the slide bars upon the

muffler-bars to produce the requisite tones. Further than this the adjustment is necessarily so fine and the construction so complicated and delicate that it readily loses its adjustment and accuracy of operation and frequently causes an objectionable jingle or even false tones.

This invention has for its object to provide a novel means for supporting the several muffler-bars of the instrument whereby an easier and more accurate movement is obtained and the number of bars increased to more than double the number now possible and within the same space or within the same limits, thereby obviating the use of the objectionable slide-bars.

In carrying out this invention, I prefer to employ a construction in which the muffler-bars are suspended at their opposite ends upon swinging links or supports, the swinging motion being the easiest possible motion, and at the same time the most powerful. The links also support the bars in proper position without requiring guides between them.

Figure 1 of the drawings represents in top or plan view an autoharp provided with muffler-bars mounted in accordance with this invention; Fig. 2, a cross section of the same taken on the dotted line $x-x$; Fig. 3 a detail showing the construction of the hanging-plate.

Referring to the drawings, A, represents the base or sounding-board of the instrument upon which are mounted the strings a , both of which may be of any usual or desired construction common to instruments of this class.

In accordance with one, and the preferred embodiment of this invention, the base or sounding-board is provided preferably at opposite sides of the strings with uprights or supports b to which are secured the horizontal plates c , a portion of one of the plates being shown in detail Fig. 3. Each of these plates c in the present construction is provided along its inner edge with a series of downturned ears c' which are turned under and back upon themselves to form eyes in which are suspended the supporting links c^2 , the lower ends of which are jointed to the opposite ends of the muffler-bars d , each of which is provided with one or more mufflers d' suitably disposed along the under side of

the muffler-bars and to co-operate with different strings when their bars are depressed.

One of the plates *c*, here shown as the one at the right Fig. 2, and at the bottom Fig. 1, is herein shown slotted or sawed along its outer edge to leave a series of tongues *c*³, there being one tongue for each ear *c*¹, or for each muffler-bar, the said tongues being depressed below the plate to form eyes *c*⁴, best shown in Figs. 2 and 3, to which are hooked the retractile springs *c*⁵, at their lower ends hooked to the ends of the muffler-bars, as best shown in Fig. 2. The eyes or hooks *c*⁴ may be otherwise formed if desired.

The springs *c*⁵ normally retain the muffler-bars in their elevated positions removed from the strings, and in contact with suitable stops, herein shown as the ears *c*¹, pieces of felt or cushioning substance *c*⁶ being preferably placed upon the top of the bars at their points of contact.

When the muffler-bars are in their elevated positions, as shown, the links *c*² stand at angles approaching horizontal positions, so that the bars may be easily depressed against the action of the springs *c*⁵, the bars being provided with suitable finger tips *d*², the finger tips upon adjacent bars being staggered, as shown in Fig. 1, to avoid interference in use.

The operator by depressing any one or more of the several muffler-bars *d*, causes the mufflers upon the under sides of the same to contact with and damp certain strings of the instrument to thereby vary the cord produced when the finger piece is drawn across the strings, the bars swinging endwise somewhat as they are depressed.

In practice I have found that by mounting the bars in the manner shown, *i. e.*, upon swinging supports, a much easier movement is obtained, partly by reason of the very slight friction which is much less than the necessary friction where the bars slide vertically between vertical wooden guides, as in instruments of this class as at present constructed.

I am, by the swinging movement, enabled to use a single spring instead of two springs as necessary in former constructions, and much smaller springs, thus further reducing the power required to operate the bars. The swing movement is also much more powerful than a direct downward movement and produces a more positive and effective damping of the strings. Furthermore, the swinging supports themselves act to maintain the bars always in proper positions, obviating the necessity for intermediate guides, thus enabling me to place the bars much closer together than is possible in instruments as at present constructed, thereby securing a greater number of bars within given limits, which limits are fixed. I also prefer to employ thin aluminum or other metallic bars, instead of the thicker wooden bars now in use, for the reason that the wooden bars are necessarily larger and more cumbersome, and after continued use tend to sag in the middle rendering the instru-

ment difficult of and imperfect in its operation.

If desired, one or both of the ends of the muffler-bars may be extended beyond the swinging supports to thereby cross a greater number of strings than can practicably be provided between the supports *b*, in which case the supports would stand between the strings.

This invention is not restricted to the particular construction herein shown, the invention consisting principally in supporting the muffler-bars upon swinging supports, the swinging supports also serving the additional function of guiding the bars in their movements.

I claim—

1. In a harp, the combination with a base, and strings mounted thereupon, of swinging muffler-bars, and mufflers thereon to contact with one or more of said strings when the muffler bars are depressed, substantially as described.

2. In a harp, the combination with a base and strings mounted thereupon, of a series of muffler-bars crossing said strings, swinging supports for the said bars, and mufflers on the said bars to act upon and damp one or more of said strings when the muffler-bars are depressed, substantially as described.

3. In a harp, the combination with a base, and strings mounted thereupon, of a series of muffler-bars crossing said strings, supporting links for and attached to the ends of the said bars, and mufflers on said bars to operate, substantially as described.

4. In a harp, the combination with a base, and strings mounted thereupon, of supports, plates on said supports provided along their inner edges with depending ears, and muffler-bars, and links connecting the same with said ears, to operate, substantially as described.

5. In a harp, a base, strings mounted thereupon, a series of swinging muffler-bars, and springs to return the same to their normal positions, substantially as described.

6. In a harp, a base, strings mounted thereupon, supports, plates on said supports provided along their adjacent edges with depending ears, muffler-bars and swinging supports therefor connected to said ears, and eyes *c*⁴ in one of said plates, and springs connecting the said eyes with and to control said muffler-bars, substantially as described.

7. In a harp, a base, strings mounted thereupon, and a series of muffler-bars, and swinging supports therefor, said supports serving not only to support and permit movement of the bars toward and from said strings but to guide the same against lateral movement, substantially as described.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

IRA A. SALMON.

Witnesses:

FREDERICK L. EMERY,
EMMA J. BENNETT.